

## SEQUENCE LISTING

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SANGAR, DAVID V.  
LEMON, STANLEY M.  
RIJNBRAND, RENE

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35 gag cgg tcg caa cct cga ggt aga cgt cag cct atc ccc aag gca cgt 548  
Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys Ala Arg  
55 60 65

40 cgg ccc gag ggc agg acc tgg gct cag ccc ggg tac cct tgg ccc ctc 596  
Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp Pro Leu  
70 75 80 85

45 tat ggc aat gag ggt tgc ggg tgg gcg gga tgg ctc ctg tct ccc cgt 644  
Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp Leu Leu Ser Pro Arg  
90 95 100

50 ggc tct cgg cct agc tgg ggc ccc aca gac ccc cgg cgt agg tcg cgc 692  
Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro Arg Arg Arg Ser Arg  
105 110 115

55 aat ttg ggt aag gtc atc gat acc ctt acg tgc ggc ttc gcc gac ctc 740  
Asn Leu Gly Lys Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu  
120 125 130

60 atg ggg tac ata ccg ctc gtc ggc gcc cct ctt gga ggc gct gcc agg 788  
Met Gly Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg  
135 140 145

65 gcc ctg gcg cat ggc gtc cgg gtt ctg gaa gac ggc gtg aac tat gca 836  
Ala Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala  
150 155 160 165

60 aca ggg aac ctt cct ggt tgc tct ttc tct atc ttc ctt ctg gcc ctg 884  
Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu  
170 175 180

65 ctc tct tgc ctg act gtg ccc gct tca gcc tac caa gtg cgc aat tcc 932  
Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Gln Val Arg Asn Ser  
185 190 195

	tcg ggg ctt tac cat gtc acc aat gat tgc cct aac tcg agt att gtg	980
	Ser Gly Leu Tyr His Val Thr Asn Asp Cys Pro Asn Ser Ser Ile Val	
	200 205 210	
5	tac gag gcg gcc gat gcc atc ctg cac act ccg ggg tgt gtc cct tgc	1028
	Tyr Glu Ala Ala Asp Ala Ile Leu His Thr Pro Gly Cys Val Pro Cys	
	215 220 225	
10	gtt cgc gag ggt aac gcc tcg agg tgt tgg gtg gcg gtg acc ccc acg	1076
	Val Arg Glu Gly Asn Ala Ser Arg Cys Trp Val Ala Val Thr Pro Thr	
	230 235 240 245	
15	gtg gcc acc agg gac gcc aaa ctc ccc aca acg cag ctt cga cgt cat	1124
	Val Ala Thr Arg Asp Gly Lys Leu Pro Thr Thr Gln Leu Arg Arg His	
	250 255 260	
20	atc gat ctg ctt gtc ggg agc gcc acc ctc tgc tcg gcc ctc tac gtg	1172
	Ile Asp Leu Leu Val Gly Ser Ala Thr Leu Cys Ser Ala Leu Tyr Val	
	265 270 275	
25	ggg gac ctg tgc ggg tct gtc ttt ctt gtt ggt caa ctg ttt acc ttc	1220
	Gly Asp Leu Cys Gly Ser Val Phe Leu Val Gly Gln Leu Phe Thr Phe	
	280 285 290	
30	tct ccc agg cgc cac tgg acg acg caa gac tgc aat tgt tct atc tat	1268
	Ser Pro Arg Arg His Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr	
	295 300 305	
35	ccc gcc cat ata acg ggt cat cgc atg gca tgg gat atg atg atg aac	1316
	Pro Gly His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn	
	310 315 320 325	
40	tgg tcc cct acg gca gcg ttg gtg gta gct cag ctg ctc cgg atc cca	1364
	Trp Ser Pro Thr Ala Ala Leu Val Val Ala Gln Leu Leu Arg Ile Pro	
	330 335 340	
45	caa gcc atc atg gac atg atc gct ggt gct cac tgg gga gtc ctg gcg	1412
	Gln Ala Ile Met Asp Met Ile Ala Gly Ala His Trp Gly Val Leu Ala	
	345 350 355	
50	ggc ata gcg tat ttc tcc atg gtg ggg aac tgg gcg aag gtc ctg gta	1460
	Gly Ile Ala Tyr Phe Ser Met Val Gly Asn Trp Ala Lys Val Leu Val	
	360 365 370	
55	gtg ctg ctg cta ttt gcc ggc gtc gac gcg gaa acc cac gtc acc ggg	1508
	Val Leu Leu Leu Phe Ala Gly Val Asp Ala Glu Thr His Val Thr Gly	
	375 380 385	
60	gga aat gcc ggc cgc acc acg gct ggg ctt gtt ggt ctc ctt aca cca	1556
	Gly Asn Ala Gly Arg Thr Thr Ala Gly Leu Val Gly Leu Leu Thr Pro	
	390 395 400 405	
65	ggc gcc aag cag aac atc caa ctg atc aac acc aac ggc agt tgg cac	1604
	Gly Ala Lys Gln Asn Ile Gln Leu Ile Asn Thr Asn Gly Ser Trp His	
	410 415 420	
70	atc aat agc acg gcc ttg aat tgc aat gaa agc ctt aac acc ggc tgg	1652
	Ile Asn Ser Thr Ala Leu Asn Cys Asn Glu Ser Leu Asn Thr Gly Trp	
	425 430 435	
75	tta gca ggg ctc ttc tat caa cac aaa ttc aac tct tca ggc tgt cct	1700
	Leu Ala Gly Leu Phe Tyr Gln His Lys Phe Asn Ser Ser Gly Cys Pro	
	440 445 450	
80	gag agg ttg gcc agc tgc cga cgc ctt acc gat ttt gcc cag ggc tgg	1748

	Glu	Arg	Leu	Ala	Ser	Cys	Arg	Arg	Leu	Thr	Asp	Phe	Ala	Gln	Gly	Trp	
	455						460					465					
5	ggt	cct	atc	agt	tat	gcc	aac	gga	agc	ggc	ctc	gac	gaa	cgc	ccc	tac	1796
	Gly	Pro	Ile	Ser	Tyr	Ala	Asn	Gly	Ser	Gly	Leu	Asp	Glu	Arg	Pro	Tyr	
	470					475					480					485	
10	tgc	tgg	cac	tac	cct	cca	aga	cct	tgt	ggc	att	gtg	ccc	gca	aag	agc	1844
	Cys	Trp	His	Tyr	Pro	Pro	Arg	Pro	Cys	Gly	Ile	Val	Pro	Ala	Lys	Ser	
					490					495					500		
15	gtg	tgt	ggc	ccg	gta	tat	tgc	ttc	act	ccc	agc	ccc	gtg	gtg	gtg	gga	1892
	Val	Cys	Gly	Pro	Val	Tyr	Cys	Phe	Thr	Pro	Ser	Pro	Val	Val	Val	Gly	
				505					510					515			
20	acg	acc	gac	agg	tcg	ggc	gcg	cct	acc	tac	agc	tgg	ggg	gca	aat	gat	1940
	Thr	Thr	Asp	Arg	Ser	Gly	Ala	Pro	Thr	Tyr	Ser	Trp	Gly	Ala	Asn	Asp	
			520					525					530				
25	acg	gat	gtc	ttc	gtc	ctt	aac	aac	acc	agg	cca	ccg	ctg	ggc	aat	tgg	1988
	Thr	Asp	Val	Phe	Val	Leu	Asn	Asn	Thr	Arg	Pro	Pro	Leu	Gly	Asn	Trp	
		535					540					545					
30	ttc	ggt	tgt	acc	tgg	atg	aac	tca	act	gga	ttc	acc	aaa	gtg	tgc	gga	2036
	Phe	Gly	Cys	Thr	Trp	Met	Asn	Ser	Thr	Gly	Phe	Thr	Lys	Val	Cys	Gly	
	550					555					560					565	
35	gcg	ccc	cct	tgt	gtc	atc	gga	ggg	gtg	ggc	aac	aac	acc	ttg	ctc	tgc	2084
	Ala	Pro	Pro	Cys	Val	Ile	Gly	Gly	Val	Gly	Asn	Asn	Thr	Leu	Leu	Cys	
					570					575					580		
40	ccc	act	gat	tgc	ttc	cgc	aaa	cat	ccg	gaa	gcc	aca	tac	tct	cgg	tgc	2132
	Pro	Thr	Asp	Cys	Phe	Arg	Lys	His	Pro	Glu	Ala	Thr	Tyr	Ser	Arg	Cys	
				585					590					595			
45	ggc	tcc	ggt	ccc	tgg	att	aca	ccc	agg	tgc	atg	gtc	gac	tac	ccg	tat	2180
	Gly	Ser	Gly	Pro	Trp	Ile	Thr	Pro	Arg	Cys	Met	Val	Asp	Tyr	Pro	Tyr	
			600					605					610				
50	agg	ctt	tgg	cac	tat	cct	tgt	acc	atc	aat	tac	acc	ata	ttc	aaa	gtc	2228
	Arg	Leu	Trp	His	Tyr	Pro	Cys	Thr	Ile	Asn	Tyr	Thr	Ile	Phe	Lys	Val	
		615					620					625					
55	agg	atg	tac	gtg	gga	ggg	gtc	gag	cac	agg	ctg	gaa	gcg	gcc	tgc	aac	2276
	Arg	Met	Tyr	Val	Gly	Gly	Val	Glu	His	Arg	Leu	Glu	Ala	Ala	Cys	Asn	
	630					635					640					645	
60	tgg	acg	cgg	ggc	gaa	cgc	tgt	gat	ctg	gaa	gac	agg	gac	agg	tcc	gag	2324
	Trp	Thr	Arg	Gly	Glu	Arg	Cys	Asp	Leu	Glu	Asp	Arg	Arg	Arg	Ser	Glu	
					650					655					660		
65	ctc	agc	ccg	ttg	ctg	ctg	tcc	acc	aca	cag	tgg	cag	gtc	ctt	ccg	tgt	2372
	Leu	Ser	Pro	Leu	Leu	Leu	Ser	Thr	Thr	Gln	Trp	Gln	Val	Leu	Pro	Cys	
				665					670					675			
70	tct	ttc	acg	acc	ctg	cca	gcc	ttg	tcc	acc	ggc	ctc	atc	cac	ctc	cac	2420
	Ser	Phe	Thr	Thr	Leu	Pro	Ala	Leu	Ser	Thr	Gly	Leu	Ile	His	Leu	His	
			680					685					690				
75	cag	aac	att	gtg	gac	gtg	cag	tac	ttg	tac	ggg	gta	ggg	tca	agc	atc	2468
	Gln	Asn	Ile	Val	Asp	Val	Gln	Tyr	Leu	Tyr	Gly	Val	Gly	Ser	Ser	Ile	
		695					700					705					
80	gcg	tcc	tgg	gcc	att	aag	tgg	gag	tac	gtc	gtt	ctc	ctg	ttc	ctt	ctg	2516
	Ala	Ser	Trp	Ala	Ile	Lys	Trp	Glu	Tyr	Val	Val	Leu	Leu	Phe	Leu	Leu	
	710					715					720					725	



	ctt gca gac gcg cgc gtc tgc tcc tgc ttg tgg atg atg tta ctc ata	2564
	Leu Ala Asp Ala Arg Val Cys Ser Cys Leu Trp Met Met Leu Leu Ile	
	730 735 740	
5	tcc caa gcg gag gcg gct ttg gag aac ctc gta ata ctc aat gca gca	2612
	Ser Gln Ala Glu Ala Ala Leu Glu Asn Leu Val Ile Leu Asn Ala Ala	
	745 750 755	
10	tcc ctg gcc ggg acg cac ggt ctt gtg tcc ttc ctc gtg ttc ttc tgc	2660
	Ser Leu Ala Gly Thr His Gly Leu Val Ser Phe Leu Val Phe Phe Cys	
	760 765 770	
15	ttt gcg tgg tat ctg aag ggt agg tgg gtg ccc gga gcg gtc tac gcc	2708
	Phe Ala Trp Tyr Leu Lys Gly Arg Trp Val Pro Gly Ala Val Tyr Ala	
	775 780 785	
20	ctc tac ggg atg tgg cct ctc ctc ctg ctc ctg ctg gcg ttg cct cag	2756
	Leu Tyr Gly Met Trp Pro Leu Leu Leu Leu Leu Leu Ala Leu Pro Gln	
	790 795 800 805	
25	cgg gca tac gca ctg gac acg gag gtg gcc gcg tcg tgt ggc ggc gtt	2804
	Arg Ala Tyr Ala Leu Asp Thr Glu Val Ala Ala Ser Cys Gly Gly Val	
	810 815 820	
25	gtt ctt gtc ggg tta atg gcg ctg act ctg tcg cca tat tac aag cgc	2852
	Val Leu Val Gly Leu Met Ala Leu Thr Leu Ser Pro Tyr Tyr Lys Arg	
	825 830 835	
30	tat atc agc tgg tgc atg tgg tgg ctt cag tat ttt ctg acc aga gta	2900
	Tyr Ile Ser Trp Cys Met Trp Trp Leu Gln Tyr Phe Leu Thr Arg Val	
	840 845 850	
35	gaa gcg caa ctg cac gtg tgg gtt ccc ccc ctc aac gtc cgg ggg ggg	2948
	Glu Ala Gln Leu His Val Trp Val Pro Pro Leu Asn Val Arg Gly Gly	
	855 860 865	
40	cgc gat gcc gtc atc tta ctc atg tgt gta gta cac ccg acc ctg gta	2996
	Arg Asp Ala Val Ile Leu Leu Met Cys Val Val His Pro Thr Leu Val	
	870 875 880 885	
45	ttt gac atc acc aaa cta ctc ctg gcc atc ttc gga ccg ctt tgg att	3044
	Phe Asp Ile Thr Lys Leu Leu Leu Ala Ile Phe Gly Pro Leu Trp Ile	
	890 895 900	
45	ctt caa gcc agt ttg ctt aaa gtc ccc tac ttc gtg cgc gtt caa ggc	3092
	Leu Gln Ala Ser Leu Leu Lys Val Pro Tyr Phe Val Arg Val Gln Gly	
	905 910 915	
50	ctt ctc cgg atc tgc gcg cta gcg cgg aag ata gcc gga ggt cat tac	3140
	Leu Leu Arg Ile Cys Ala Leu Ala Arg Lys Ile Ala Gly Gly His Tyr	
	920 925 930	
55	gtg caa atg gcc atc atc aag tta ggg gcg ctt act ggc acc tat gtg	3188
	Val Gln Met Ala Ile Ile Lys Leu Gly Ala Leu Thr Gly Thr Tyr Val	
	935 940 945	
60	tat aac cat ctc acc cct ctt cga gac tgg gcg cac aac ggc ctg cga	3236
	Tyr Asn His Leu Thr Pro Leu Arg Asp Trp Ala His Asn Gly Leu Arg	
	950 955 960 965	
65	gat ctg gcc gtg gct gtg gaa cca gtc gtc ttc tcc cga atg gag acc	3284
	Asp Leu Ala Val Ala Val Glu Pro Val Val Phe Ser Arg Met Glu Thr	
	970 975 980	
65	aag ctc atc acg tgg ggg gca gat acc gcc gcg tgc ggt gac atc atc	3332

	Lys	Leu	Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala	Cys	Gly	Asp	Ile	Ile	
				985					990					995			
5	aac	ggc	ttg	ccc	gtc	tct	gcc	cgt	agg	ggc	cag	gag	ata	ctg	ctt	ggg	3380
	Asn	Gly	Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Gln	Glu	Ile	Leu	Leu	Gly	
		1000						1005					1010				
10	cca	gcc	gac	gga	atg	gtc	tcc	aag	ggg	tgg	agg	ttg	ctg	gcg	ccc	atc	3428
	Pro	Ala	Asp	Gly	Met	Val	Ser	Lys	Gly	Trp	Arg	Leu	Leu	Ala	Pro	Ile	
		1015					1020					1025					
15	acg	gcg	tac	gcc	cag	cag	acg	aga	ggc	ctc	cta	ggg	tgt	ata	atc	acc	3476
	Thr	Ala	Tyr	Ala	Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly	Cys	Ile	Ile	Thr	
	1030				1035					1040					1045		
	agc	ctg	act	ggc	cgg	gac	aaa	aac	caa	gtg	gag	ggt	gag	gtc	cag	atc	3524
	Ser	Leu	Thr	Gly	Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly	Glu	Val	Gln	Ile	
				1050					1055					1060			
20	gtg	tca	act	gct	acc	caa	acc	ttc	ctg	gca	acg	tgc	atc	aat	ggg	gta	3572
	Val	Ser	Thr	Ala	Thr	Gln	Thr	Phe	Leu	Ala	Thr	Cys	Ile	Asn	Gly	Val	
				1065				1070						1075			
25	tgc	tgg	act	gtc	tac	cac	ggg	gcc	gga	acg	agg	acc	atc	gca	tca	ccc	3620
	Cys	Trp	Thr	Val	Tyr	His	Gly	Ala	Gly	Thr	Arg	Thr	Ile	Ala	Ser	Pro	
		1080					1085						1090				
30	aag	ggt	cct	gtc	atc	cag	atg	tat	acc	aat	gtg	gac	caa	gac	ctt	gtg	3668
	Lys	Gly	Pro	Val	Ile	Gln	Met	Tyr	Thr	Asn	Val	Asp	Gln	Asp	Leu	Val	
		1095				1100						1105					
35	ggc	tgg	ccc	gct	cct	caa	ggt	tcc	cgc	tca	ttg	aca	ccc	tgt	acc	tgc	3716
	Gly	Trp	Pro	Ala	Pro	Gln	Gly	Ser	Arg	Ser	Leu	Thr	Pro	Cys	Thr	Cys	
	1110				1115					1120					1125		
	ggc	tcc	tcg	gac	ctt	tac	ctg	gtc	acg	agg	cac	gcc	gat	gtc	att	ccc	3764
	Gly	Ser	Ser	Asp	Leu	Tyr	Leu	Val	Thr	Arg	His	Ala	Asp	Val	Ile	Pro	
				1130					1135					1140			
40	gtg	cgc	cgg	cga	ggt	gat	agc	agg	ggt	agc	ctg	ctt	tcg	ccc	cgg	ccc	3812
	Val	Arg	Arg	Arg	Gly	Asp	Ser	Arg	Gly	Ser	Leu	Leu	Ser	Pro	Arg	Pro	
				1145				1150						1155			
45	att	tcc	tac	ttg	aaa	ggc	tcc	tcg	ggg	ggt	ccg	ctg	ttg	tgc	ccc	gcg	3860
	Ile	Ser	Tyr	Leu	Lys	Gly	Ser	Ser	Gly	Gly	Pro	Leu	Leu	Cys	Pro	Ala	
		1160					1165					1170					
50	gga	cac	gcc	gtg	ggc	cta	ttc	agg	gcc	gcg	gtg	tgc	acc	cgt	gga	gtg	3908
	Gly	His	Ala	Val	Gly	Leu	Phe	Arg	Ala	Ala	Val	Cys	Thr	Arg	Gly	Val	
		1175				1180					1185						
55	gct	aaa	gcg	gtg	gac	ttt	atc	cct	gtg	gag	aac	cta	ggg	aca	acc	atg	3956
	Ala	Lys	Ala	Val	Asp	Phe	Ile	Pro	Val	Glu	Asn	Leu	Gly	Thr	Thr	Met	
	1190				1195					1200					1205		
	aga	tcc	ccg	gtg	ttc	acg	gac	aac	tcc	tct	cca	cca	gca	gtg	ccc	cag	4004
	Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro	Pro	Ala	Val	Pro	Gln	
				1210					1215					1220			
60	agc	ttc	cag	gtg	gcc	cac	ctg	cat	gct	ccc	acc	ggc	agc	ggt	aag	agc	4052
	Ser	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr	Gly	Ser	Gly	Lys	Ser	
				1225				1230					1235				
65	acc	aag	gtc	ccg	gct	gcg	tac	gca	gcc	cag	ggc	tac	aag	gtg	ttg	gtg	4100
	Thr	Lys	Val	Pro	Ala	Ala	Tyr	Ala	Ala	Gln	Gly	Tyr	Lys	Val	Leu	Val	
		1240				1245						1250					

5	ctc aac ccc tct gtt gct gca acg ctg ggc ttt ggt gct tac atg tcc	4148
	Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser	
	1255 1260 1265	
10	aag gcc cat ggg gtt gat cct aat atc agg acc ggg gtg aga aca att	4196
	Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile	
	1270 1275 1280 1285	
15	acc act ggc agc ccc atc acg tac tcc acc tac ggc aag ttc ctt gcc	4244
	Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala	
	1290 1295 1300	
20	gac ggc ggg tgc tca gga ggt gct tat gac ata ata att tgt gac gag	4292
	Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile Cys Asp Glu	
	1305 1310 1315	
25	tgc cac tcc acg gat gcc aca tcc atc ttg ggc atc ggc act gtc ctt	4340
	Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly Thr Val Leu	
	1320 1325 1330	
30	gac caa gca gag act gcg ggg gcg aga ctg gtt gtg ctc gcc act gct	4388
	Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala	
	1335 1340 1345	
35	acc cct ccg ggc tcc gtc act gtg tcc cat cct aac atc gag gag gtt	4436
	Thr Pro Pro Gly Ser Val Thr Val Ser His Pro Asn Ile Glu Glu Val	
	1350 1355 1360 1365	
40	gct ctg tcc acc acc gga gag atc ccc ttt tac ggc aag gct atc ccc	4484
	Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro	
	1370 1375 1380	
45	ctc gag gtg atc aag ggg gga aga cat ctc atc ttc tgc cac tca aag	4532
	Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys	
	1385 1390 1395	
50	aag aag tgc gac gag ctc gcc gcg aag ctg gtc gca ttg ggc atc aat	4580
	Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly Ile Asn	
	1400 1405 1410	
55	gcc gtg gcc tac tac cgc ggt ctt gac gtg tct gtc atc ccg acc agc	4628
	Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser	
	1415 1420 1425	
60	ggc gat gtt gtc gtc gtg tcg acc gat gct ctc atg act ggc ttt acc	4676
	Gly Asp Val Val Val Val Ser Thr Asp Ala Leu Met Thr Gly Phe Thr	
	1430 1435 1440 1445	
65	ggc gac ttc gac tct gtg ata gac tgc aac acg tgt gtc act cag aca	4724
	Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr	
	1450 1455 1460	
70	gtc gat ttc agc ctt gac cct acc ttt acc att gag aca acc acg ctc	4772
	Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu	
	1465 1470 1475	
75	ccc cag gat gct gtc tcc agg act caa cgc cgg ggc agg act ggc agg	4820
	Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg	
	1480 1485 1490	
80	ggg aag cca ggc atc tat aga ttt gtg gca ccg ggg gag cgc ccc tcc	4868
	Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser	
	1495 1500 1505	
85	ggc atg ttc gac tcg tcc gtc ctc tgt gag tgc tat gac gcg ggc tgt	4916

	Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys	
	1510 1515 1520 1525	
5	gct tgg tat gag ctc acg ccc gcc gag act aca gtt agg cta cga gcg Ala Trp Tyr Glu Leu Thr Pro Ala Glu Thr Thr Val Arg Leu Arg Ala	4964
	1530 1535 1540	
10	tac atg aac acc ccg ggg ctt ccc gtg tgc cag gac cat ctt gaa ttt Tyr Met Asn Thr Pro Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe	5012
	1545 1550 1555	
15	tgg gag ggc gtc ttt acg ggc ctc act cat ata gat gcc cac ttt tta Trp Glu Gly Val Phe Thr Gly Leu Thr His Ile Asp Ala His Phe Leu	5060
	1560 1565 1570	
	tcc cag aca aag cag agt ggg gag aac ttt cct tac ctg gta gcg tac Ser Gln Thr Lys Gln Ser Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr	5108
	1575 1580 1585	
20	caa gcc acc gtg tgc gct agg gct caa gcc cct ccc cca tcg tgg gac Gln Ala Thr Val Cys Ala Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp	5156
	1590 1595 1600 1605	
25	cag atg tgg aag tgt ttg atc cgc ctt aaa ccc acc ctc cat ggg cca Gln Met Trp Lys Cys Leu Ile Arg Leu Lys Pro Thr Leu His Gly Pro	5204
	1610 1615 1620	
30	aca ccc ctg cta tac aga ctg ggc gct gtt cag aat gaa gtc acc ctg Thr Pro Leu Leu Tyr Arg Leu Gly Ala Val Gln Asn Glu Val Thr Leu	5252
	1625 1630 1635	
35	acg cac cca atc acc aaa tac atc atg aca tgc atg tcg gcc gac ctg Thr His Pro Ile Thr Lys Tyr Ile Met Thr Cys Met Ser Ala Asp Leu	5300
	1640 1645 1650	
	gag gtc gtc acg agc acc tgg gtg ctc gtt ggc ggc gtc ctg gct gct Glu Val Val Thr Ser Thr Trp Val Leu Val Gly Gly Val Leu Ala Ala	5348
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	1750 1755 1760 1765	
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	Ser	Pro	Glu	Phe	Phe	Thr	Glu	Leu	Asp	Gly	Val	Arg	Leu	His	Arg	Phe	
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65	Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala	
	35 40 45	

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	Leu	Leu	Arg	Ile	Pro	Gln	Ala	Ile	Met	Asp	Met	Ile	Ala	Gly	Ala	His
				340					345					350		
40	Trp	Gly	Val	Leu	Ala	Gly	Ile	Ala	Tyr	Phe	Ser	Met	Val	Gly	Asn	Trp
			355					360					365			
	Ala	Lys	Val	Leu	Val	Val	Leu	Leu	Phe	Ala	Gly	Val	Asp	Ala	Glu	
		370					375				380					
	Thr	His	Val	Thr	Gly	Gly	Asn	Ala	Gly	Arg	Thr	Thr	Ala	Gly	Leu	Val
	385				390						395				400	
45	Gly	Leu	Leu	Thr	Pro	Gly	Ala	Lys	Gln	Asn	Ile	Gln	Leu	Ile	Asn	Thr
					405					410					415	
	Asn	Gly	Ser	Trp	His	Ile	Asn	Ser	Thr	Ala	Leu	Asn	Cys	Asn	Glu	Ser
				420					425					430		
50	Leu	Asn	Thr	Gly	Trp	Leu	Ala	Gly	Leu	Phe	Tyr	Gln	His	Lys	Phe	Asn
			435					440					445			
	Ser	Ser	Gly	Cys	Pro	Glu	Arg	Leu	Ala	Ser	Cys	Arg	Arg	Leu	Thr	Asp
		450					455					460				
	Phe	Ala	Gln	Gly	Trp	Gly	Pro	Ile	Ser	Tyr	Ala	Asn	Gly	Ser	Gly	Leu
	465				470						475				480	
55	Asp	Glu	Arg	Pro	Tyr	Cys	Trp	His	Tyr	Pro	Pro	Arg	Pro	Cys	Gly	Ile
					485					490					495	
	Val	Pro	Ala	Lys	Ser	Val	Cys	Gly	Pro	Val	Tyr	Cys	Phe	Thr	Pro	Ser
				500					505					510		
60	Pro	Val	Val	Val	Gly	Thr	Thr	Asp	Arg	Ser	Gly	Ala	Pro	Thr	Tyr	Ser
			515					520					525			
	Trp	Gly	Ala	Asn	Asp	Thr	Asp	Val	Phe	Val	Leu	Asn	Asn	Thr	Arg	Pro
		530					535					540				
	Pro	Leu	Gly	Asn	Trp	Phe	Gly	Cys	Thr	Trp	Met	Asn	Ser	Thr	Gly	Phe
	545					550					555				560	
65	Thr	Lys	Val	Cys	Gly	Ala	Pro	Pro	Cys	Val	Ile	Gly	Gly	Val	Gly	Asn
					565					570					575	

	Asn	Thr	Leu	Leu	Cys	Pro	Thr	Asp	Cys	Phe	Arg	Lys	His	Pro	Glu	Ala
			580						585					590		
	Thr	Tyr	Ser	Arg	Cys	Gly	Ser	Gly	Pro	Trp	Ile	Thr	Pro	Arg	Cys	Met
			595					600					605			
5	Val	Asp	Tyr	Pro	Tyr	Arg	Leu	Trp	His	Tyr	Pro	Cys	Thr	Ile	Asn	Tyr
		610					615					620				
	Thr	Ile	Phe	Lys	Val	Arg	Met	Tyr	Val	Gly	Gly	Val	Glu	His	Arg	Leu
		625				630					635					640
10	Glu	Ala	Ala	Cys	Asn	Trp	Thr	Arg	Gly	Glu	Arg	Cys	Asp	Leu	Glu	Asp
					645					650					655	
	Arg	Asp	Arg	Ser	Glu	Leu	Ser	Pro	Leu	Leu	Leu	Ser	Thr	Thr	Gln	Trp
				660					665					670		
	Gln	Val	Leu	Pro	Cys	Ser	Phe	Thr	Thr	Leu	Pro	Ala	Leu	Ser	Thr	Gly
				675				680					685			
15	Leu	Ile	His	Leu	His	Gln	Asn	Ile	Val	Asp	Val	Gln	Tyr	Leu	Tyr	Gly
		690					695					700				
	Val	Gly	Ser	Ser	Ile	Ala	Ser	Trp	Ala	Ile	Lys	Trp	Glu	Tyr	Val	Val
		705				710					715					720
20	Leu	Leu	Phe	Leu	Leu	Leu	Ala	Asp	Ala	Arg	Val	Cys	Ser	Cys	Leu	Trp
					725					730						735
	Met	Met	Leu	Leu	Ile	Ser	Gln	Ala	Glu	Ala	Ala	Leu	Glu	Asn	Leu	Val
				740					745					750		
	Ile	Leu	Asn	Ala	Ala	Ser	Leu	Ala	Gly	Thr	His	Gly	Leu	Val	Ser	Phe
			755					760					765			
25	Leu	Val	Phe	Phe	Cys	Phe	Ala	Trp	Tyr	Leu	Lys	Gly	Arg	Trp	Val	Pro
		770					775					780				
	Gly	Ala	Val	Tyr	Ala	Leu	Tyr	Gly	Met	Trp	Pro	Leu	Leu	Leu	Leu	Leu
		785				790					795					800
30	Leu	Ala	Leu	Pro	Gln	Arg	Ala	Tyr	Ala	Leu	Asp	Thr	Glu	Val	Ala	Ala
					805					810					815	
	Ser	Cys	Gly	Gly	Val	Val	Leu	Val	Gly	Leu	Met	Ala	Leu	Thr	Leu	Ser
				820					825					830		
	Pro	Tyr	Tyr	Lys	Arg	Tyr	Ile	Ser	Trp	Cys	Met	Trp	Trp	Leu	Gln	Tyr
			835					840					845			
35	Phe	Leu	Thr	Arg	Val	Glu	Ala	Gln	Leu	His	Val	Trp	Val	Pro	Pro	Leu
		850					855					860				
	Asn	Val	Arg	Gly	Gly	Arg	Asp	Ala	Val	Ile	Leu	Leu	Met	Cys	Val	Val
		865				870					875					880
40	His	Pro	Thr	Leu	Val	Phe	Asp	Ile	Thr	Lys	Leu	Leu	Leu	Ala	Ile	Phe
					885					890					895	
	Gly	Pro	Leu	Trp	Ile	Leu	Gln	Ala	Ser	Leu	Leu	Lys	Val	Pro	Tyr	Phe
			900						905					910		
	Val	Arg	Val	Gln	Gly	Leu	Leu	Arg	Ile	Cys	Ala	Leu	Ala	Arg	Lys	Ile
			915					920					925			
45	Ala	Gly	Gly	His	Tyr	Val	Gln	Met	Ala	Ile	Ile	Lys	Leu	Gly	Ala	Leu
		930					935					940				
	Thr	Gly	Thr	Tyr	Val	Tyr	Asn	His	Leu	Thr	Pro	Leu	Arg	Asp	Trp	Ala
		945				950					955					960
50	His	Asn	Gly	Leu	Arg	Asp	Leu	Ala	Val	Ala	Val	Glu	Pro	Val	Val	Phe
					965					970					975	
	Ser	Arg	Met	Glu	Thr	Lys	Leu	Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala
				980					985					990		
	Cys	Gly	Asp	Ile	Ile	Asn	Gly	Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Gln
			995					1000					1005			
55	Glu	Ile	Leu	Leu	Gly	Pro	Ala	Asp	Gly	Met	Val	Ser	Lys	Gly	Trp	Arg
		1010					1015					1020				
	Leu	Leu	Ala	Pro	Ile	Thr	Ala	Tyr	Ala	Gln	Gln	Thr	Arg	Gly	Leu	Leu
		1025				1030					1035					1040
60	Gly	Cys	Ile	Ile	Thr	Ser	Leu	Thr	Gly	Arg	Asp	Lys	Asn	Gln	Val	Glu
					1045					1050					1055	
	Gly	Glu	Val	Gln	Ile	Val	Ser	Thr	Ala	Thr	Gln	Thr	Phe	Leu	Ala	Thr
				1060					1065					1070		
	Cys	Ile	Asn	Gly	Val	Cys	Trp	Thr	Val	Tyr	His	Gly	Ala	Gly	Thr	Arg
		1075						1080					1085			
65	Thr	Ile	Ala	Ser	Pro	Lys	Gly	Pro	Val	Ile	Gln	Met	Tyr	Thr	Asn	Val
		1090					1095						1100			

	Asp	Gln	Asp	Leu	Val	Gly	Trp	Pro	Ala	Pro	Gln	Gly	Ser	Arg	Ser	Leu	
	1105					1110					1115					1120	
	Thr	Pro	Cys	Thr	Cys	Gly	Ser	Ser	Asp	Leu	Tyr	Leu	Val	Thr	Arg	His	
					1125					1130					1135		
5	Ala	Asp	Val	Ile	Pro	Val	Arg	Arg	Arg	Gly	Asp	Ser	Arg	Gly	Ser	Leu	
				1140					1145					1150			
	Leu	Ser	Pro	Arg	Pro	Ile	Ser	Tyr	Leu	Lys	Gly	Ser	Ser	Gly	Gly	Pro	
		1155					1160					1165					
10	Leu	Leu	Cys	Pro	Ala	Gly	His	Ala	Val	Gly	Leu	Phe	Arg	Ala	Ala	Val	
	1170						1175					1180					
	Cys	Thr	Arg	Gly	Val	Ala	Lys	Ala	Val	Asp	Phe	Ile	Pro	Val	Glu	Asn	
	1185				1190					1195						1200	
	Leu	Gly	Thr	Thr	Met	Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro	
					1205					1210					1215		
15	Pro	Ala	Val	Pro	Gln	Ser	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr	
				1220					1225					1230			
	Gly	Ser	Gly	Lys	Ser	Thr	Lys	Val	Pro	Ala	Ala	Tyr	Ala	Ala	Gln	Gly	
		1235					1240						1245				
20	Tyr	Lys	Val	Leu	Val	Leu	Asn	Pro	Ser	Val	Ala	Ala	Thr	Leu	Gly	Phe	
	1250						1255					1260					
	Gly	Ala	Tyr	Met	Ser	Lys	Ala	His	Gly	Val	Asp	Pro	Asn	Ile	Arg	Thr	
	1265				1270					1275					1280		
	Gly	Val	Arg	Thr	Ile	Thr	Thr	Gly	Ser	Pro	Ile	Thr	Tyr	Ser	Thr	Tyr	
				1285					1290						1295		
25	Gly	Lys	Phe	Leu	Ala	Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Ile	
				1300					1305					1310			
	Ile	Ile	Cys	Asp	Glu	Cys	His	Ser	Thr	Asp	Ala	Thr	Ser	Ile	Leu	Gly	
		1315					1320						1325				
30	Ile	Gly	Thr	Val	Leu	Asp	Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val	
	1330					1335						1340					
	Val/Leu	Ala	Thr	Ala	Thr	Pro	Pro	Gly	Ser	Val	Thr	Val	Ser	His	Pro		
	1345				1350					1355					1360		
	Asn	Ile	Glu	Glu	Val	Ala	Leu	Ser	Thr	Thr	Gly	Glu	Ile	Pro	Phe	Tyr	
				1365					1370						1375		
35	Gly	Lys	Ala	Ile	Pro	Leu	Glu	Val	Ile	Lys	Gly	Gly	Arg	His	Leu	Ile	
				1380					1385					1390			
	Phe	Cys	His	Ser	Lys	Lys	Lys	Cys	Asp	Glu	Leu	Ala	Ala	Lys	Leu	Val	
		1395					1400						1405				
40	Ala	Leu	Gly	Ile	Asn	Ala	Val	Ala	Tyr	Tyr	Arg	Gly	Leu	Asp	Val	Ser	
	1410					1415						1420					
	Val	Ile	Pro	Thr	Ser	Gly	Asp	Val	Val	Val	Val	Ser	Thr	Asp	Ala	Leu	
	1425				1430					1435					1440		
	Met	Thr	Gly	Phe	Thr	Gly	Asp	Phe	Asp	Ser	Val	Ile	Asp	Cys	Asn	Thr	
				1445					1450					1455			
45	Cys	Val	Thr	Gln	Thr	Val	Asp	Phe	Ser	Leu	Asp	Pro	Thr	Phe	Thr	Ile	
				1460					1465					1470			
	Glu	Thr	Thr	Thr	Leu	Pro	Gln	Asp	Ala	Val	Ser	Arg	Thr	Gln	Arg	Arg	
		1475					1480					1485					
50	Gly	Arg	Thr	Gly	Arg	Gly	Lys	Pro	Gly	Ile	Tyr	Arg	Phe	Val	Ala	Pro	
	1490					1495						1500					
	Gly	Glu	Arg	Pro	Ser	Gly	Met	Phe	Asp	Ser	Ser	Val	Leu	Cys	Glu	Cys	
	1505				1510					1515					1520		
	Tyr	Asp	Ala	Gly	Cys	Ala	Trp	Tyr	Glu	Leu	Thr	Pro	Ala	Glu	Thr	Thr	
				1525					1530					1535			
55	Val	Arg	Leu	Arg	Ala	Tyr	Met	Asn	Thr	Pro	Gly	Leu	Pro	Val	Cys	Gln	
				1540					1545					1550			
	Asp	His	Leu	Glu	Phe	Trp	Glu	Gly	Val	Phe	Thr	Gly	Leu	Thr	His	Ile	
		1555					1560						1565				
60	Asp	Ala	His	Phe	Leu	Ser	Gln	Thr	Lys	Gln	Ser	Gly	Glu	Asn	Phe	Pro	
	1570					1575						1580					
	Tyr	Leu	Val	Ala	Tyr	Gln	Ala	Thr	Val	Cys	Ala	Arg	Ala	Gln	Ala	Pro	
	1585				1590					1595					1600		
	Pro	Pro	Ser	Trp	Asp	Gln	Met	Trp	Lys	Cys	Leu	Ile	Arg	Leu	Lys	Pro	
				1605					1610					1615			
65	Thr	Leu	His	Gly	Pro	Thr	Pro	Leu	Leu	Tyr	Arg	Leu	Gly	Ala	Val	Gln	
				1620					1625					1630			

	Asn	Glu	Val	Thr	Leu	Thr	His	Pro	Ile	Thr	Lys	Tyr	Ile	Met	Thr	Cys	
		1635						1640					1645				
	Met	Ser	Ala	Asp	Leu	Glu	Val	Val	Thr	Ser	Thr	Trp	Val	Leu	Val	Gly	
		1650					1655					1660					
5	Gly	Val	Leu	Ala	Ala	Leu	Ala	Ala	Tyr	Cys	Leu	Ser	Thr	Gly	Cys	Val	
		1665				1670				1675						1680	
	Val	Ile	Val	Gly	Arg	Ile	Val	Leu	Ser	Gly	Lys	Pro	Ala	Ile	Ile	Pro	
				1685					1690					1695			
10	Asp	Arg	Glu	Val	Leu	Tyr	Gln	Glu	Phe	Asp	Glu	Met	Glu	Glu	Cys	Ser	
			1700					1705					1710				
	Gln	His	Leu	Pro	Tyr	Ile	Glu	Gln	Gly	Met	Met	Leu	Ala	Glu	Gln	Phe	
		1715					1720					1725					
	Lys	Gln	Lys	Ala	Leu	Gly	Leu	Leu	Gln	Thr	Ala	Ser	Arg	His	Ala	Glu	
		1730				1735					1740						
15	Val	Ile	Thr	Pro	Ala	Val	Gln	Thr	Asn	Trp	Gln	Lys	Leu	Glu	Val	Phe	
		1745			1750					1755					1760		
	Trp	Ala	Lys	His	Met	Trp	Asn	Phe	Ile	Ser	Gly	Ile	Gln	Tyr	Leu	Ala	
				1765					1770					1775			
20	Gly	Leu	Ser	Thr	Leu	Pro	Gly	Asn	Pro	Ala	Ile	Ala	Ser	Leu	Met	Ala	
		1780					1785					1790					
	Phe	Thr	Ala	Ala	Val	Thr	Ser	Pro	Leu	Thr	Thr	Gly	Gln	Thr	Leu	Leu	
		1795					1800					1805					
	Phe	Asn	Ile	Leu	Gly	Gly	Trp	Val	Ala	Ala	Gln	Leu	Ala	Ala	Pro	Gly	
		1810			1815					1820							
25	Ala	Ala	Thr	Ala	Phe	Val	Gly	Ala	Gly	Leu	Ala	Gly	Ala	Ala	Ile	Gly	
		1825			1830					1835					1840		
	Ser	Val	Gly	Leu	Gly	Lys	Val	Leu	Val	Asp	Ile	Leu	Ala	Gly	Tyr	Gly	
				1845					1850					1855			
30	Ala	Gly	Val	Ala	Gly	Ala	Leu	Val	Ala	Phe	Lys	Ile	Met	Ser	Gly	Glu	
		1860					1865					1870					
	Val	Pro	Ser	Thr	Glu	Asp	Leu	Val	Asn	Leu	Leu	Pro	Ala	Ile	Leu	Ser	
		1875					1880					1885					
	Pro	Gly	Ala	Leu	Val	Val	Gly	Val	Val	Cys	Ala	Ala	Ile	Leu	Arg	Arg	
		1890				1895					1900						
35	His	Val	Gly	Pro	Gly	Glu	Gly	Ala	Val	Gln	Trp	Met	Asn	Arg	Leu	Ile	
		1905			1910					1915					1920		
	Ala	Phe	Ala	Ser	Arg	Gly	Asn	His	Val	Ser	Pro	Thr	His	Tyr	Val	Pro	
				1925			1930							1935			
40	Glu	Ser	Asp	Ala	Ala	Ala	Arg	Val	Thr	Ala	Ile	Leu	Ser	Ser	Leu	Thr	
			1940				1945					1950					
	Val	Thr	Gln	Leu	Leu	Arg	Arg	Leu	His	Gln	Trp	Ile	Ser	Ser	Glu	Cys	
		1955					1960					1965					
	Thr	Thr	Pro	Cys	Ser	Gly	Ser	Trp	Leu	Arg	Asp	Ile	Trp	Asp	Trp	Ile	
		1970				1975					1980						
45	Cys	Glu	Val	Leu	Ser	Asp	Phe	Lys	Thr	Trp	Leu	Lys	Ala	Lys	Leu	Met	
		1985				1990					1995				2000		
	Pro	Gln	Leu	Pro	Gly	Ile	Pro	Phe	Val	Ser	Cys	Gln	Arg	Gly	Tyr	Arg	
				2005					2010					2015			
50	Gly	Val	Trp	Arg	Gly	Asp	Gly	Ile	Met	His	Thr	Arg	Cys	His	Cys	Gly	
		2020					2025						2030				
	Ala	Glu	Ile	Thr	Gly	His	Val	Lys	Asn	Gly	Thr	Met	Arg	Ile	Val	Gly	
		2035					2040					2045					
	Pro	Arg	Thr	Cys	Arg	Asn	Met	Trp	Ser	Gly	Thr	Phe	Pro	Ile	Asn	Ala	
		2050				2055					2060						
55	Tyr	Thr	Thr	Gly	Pro	Cys	Thr	Pro	Leu	Pro	Ala	Pro	Asn	Tyr	Lys	Phe	
		2065			2070					2075					2080		
	Ala	Leu	Trp	Arg	Val	Ser	Ala	Glu	Glu	Tyr	Val	Glu	Ile	Arg	Arg	Val	
				2085					2090					2095			
60	Gly	Asp	Phe	His	Tyr	Val	Ser	Gly	Met	Thr	Thr	Asp	Asn	Leu	Lys	Cys	
		2100						2105					2110				
	Pro	Cys	Gln	Ile	Pro	Ser	Pro	Glu	Phe	Phe	Thr	Glu	Leu	Asp	Gly	Val	
		2115					2120					2125					
	Arg	Leu	His	Arg	Phe	Ala	Pro	Pro	Cys	Lys	Pro	Leu	Leu	Arg	Glu	Glu	
		2130				2135					2140						
65	Val	Ser	Phe	Arg	Val	Gly	Leu	His	Glu	Tyr	Pro	Val	Gly	Ser	Gln	Leu	
		2145				2150				2155					2160		

Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser Met Leu Thr  
 2165 2170 2175  
 Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg Leu Ala Arg  
 2180 2185 2190  
 5 Gly Ser Pro Pro Ser Met Ala Ser Ser Ala Ser Gln Leu Ser Ala  
 2195 2200 2205  
 Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His Asp Ser Pro Asp Ala  
 2210 2215 2220  
 10 Glu Leu Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu Met Gly Gly Asn  
 2225 2230 2235 2240  
 Ile Thr Arg Val Glu Ser Glu Asn Lys Val Val Ile Leu Asp Ser Phe  
 2245 2250 2255  
 Asp Pro Leu Val Ala Glu Glu Asp Glu Arg Glu Val Ser Val Pro Ala  
 2260 2265 2270  
 15 Glu Ile Leu Arg Lys Ser Arg Arg Phe Ala Arg Ala Leu Pro Val Trp  
 2275 2280 2285  
 Ala Arg Pro Asp Tyr Asn Pro Pro Leu Val Glu Thr Trp Lys Lys Pro  
 2290 2295 2300  
 20 Asp Tyr Glu Pro Pro Val Val His Gly Cys Pro Leu Pro Pro Pro Arg  
 2305 2310 2315 2320  
 Ser Pro Pro Val Pro Pro Pro Arg Lys Lys Arg Thr Val Val Leu Thr  
 2325 2330 2335  
 Glu Ser Thr Leu Ser Thr Ala Leu Ala Glu Leu Ala Thr Lys Ser Phe  
 2340 2345 2350  
 25 Gly Ser Ser Ser Thr Ser Gly Ile Thr Gly Asp Asn Thr Thr Thr Ser  
 2355 2360 2365  
 Ser Glu Pro Ala Pro Ser Gly Cys Pro Pro Asp Ser Asp Val Glu Ser  
 2370 2375 2380  
 30 Tyr Ser Ser Met Pro Pro Leu Glu Gly Glu Pro Gly Asp Pro Asp Leu  
 2385 2390 2395 2400  
 Ser/Asp Gly Ser Trp Ser Thr Val Ser Ser Gly Ala Asp Thr Glu Asp  
 2405 2410 2415  
 Val Val Cys Cys Ser Met Ser Tyr Ser Trp Thr Gly Ala Leu Val Thr  
 2420 2425 2430  
 35 Pro Cys Ala Ala Glu Glu Gln Lys Leu Pro Ile Asn Ala Leu Ser Asn  
 2435 2440 2445  
 Ser Leu Leu Arg His His Asn Leu Val Tyr Ser Thr Thr Ser Arg Ser  
 2450 2455 2460  
 40 Ala Cys Gln Arg Gln Lys Lys Val Thr Phe Asp Arg Leu Gln Val Leu  
 2465 2470 2475 2480  
 Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys Ala Ala Ala Ser  
 2485 2490 2495  
 Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala Cys Ser Leu Thr  
 2500 2505 2510  
 45 Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys Asp Val  
 2515 2520 2525  
 Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn Ser Val Trp Lys  
 2530 2535 2540  
 50 Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala  
 2545 2550 2555 2560  
 Lys Asn Glu Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro  
 2565 2570 2575  
 Ala Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys  
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 55 Met Ala Leu Tyr Asp Val Val Ser Lys Leu Pro Leu Ala Val Met Gly  
 2595 2600 2605  
 Ser Ser Tyr Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu  
 2610 2615 2620  
 60 Val Gln Ala Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp  
 2625 2630 2635 2640  
 Thr Arg Cys Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Thr Glu  
 2645 2650 2655  
 Glu Ala Ile Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg Val Ala  
 2660 2665 2670  
 65 Ile Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr Asn  
 2675 2680 2685

Ser Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val  
 2690 2695 2700  
 Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala Arg  
 2705 2710 2715 2720  
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 Gly Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp  
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 Pro Pro Gly Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr  
 2770 2775 2780  
 Ser Cys Ser Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys Arg  
 2785 2790 2795 2800  
 15 Val Tyr Tyr Leu Thr Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala  
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 Trp Glu Thr Ala Arg His Thr Pro Val Asn Ser Trp Leu Gly Asn Ile  
 2820 2825 2830  
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 Phe Phe Ser Val Leu Ile Ala Arg Asp Gln Leu Glu Gln Ala Leu Asn  
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 Cys Glu Ile Tyr Gly Ala Cys Tyr Ser Ile Glu Pro Leu Asp Leu Pro  
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 25 Pro Ile Ile Gln Arg Leu His Gly Leu Ser Ala Phe Ser Leu His Ser  
 2885 2890 2895  
 Tyr Ser Pro Gly Glu Ile Asn Arg Val Ala Ala Cys Leu Arg Lys Leu  
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 30 Gly Val Pro Pro Leu Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg  
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 Ala Arg Leu Leu Ser Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr  
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 2965 2970 2975  
 Gly Gly Asp Ile Tyr His Ser Val Ser His Ala Arg Pro Arg Trp Phe  
 2980 2985 2990  
 40 Trp Phe Cys Leu Leu Leu Ala Ala Gly Val Gly Ile Tyr Leu Leu  
 2995 3000 3005  
 Pro Asn Arg  
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 Primer

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 Primer

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19

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